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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/810,595

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Norihiro Inaoka

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EXAMINER

RAABE, CHRISTOPHER M

ART UNIT

PAPER NUMBER

2879

DATE MAILED: 10/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/810,595

Applicant(s)

INAOKA ET AL. 

Examiner

Christopher M. Raabe

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-10 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 March 2004 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/29/04</u> . | 6) <input type="checkbox"/> Other: ____.  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 1,2,6,10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. (Japan Patent 6-13029) in view of Haslund (US Patent 3543076).

With regard to claim 1,

Ito et al. disclose a lamp which comprises: an arc tube provided with a side tube portion at each end (fig 1); an anode and an opposed cathode located within the arc tube spaced a predetermined distance from each other (4's of fig 1); and an electrode rod connected to a back end of the anode and extending to an adjacent side tube portion and another electrode rod connected to a back end of the cathode and extending to an adjacent side tube portion (5

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of fig 1), wherein the anode comprises: a flattened or rounded anode tip (4a of fig 2); a rounded or flattened back end (4b of fig 2); a portion with a gradually increasing diameter in which the gradual increasing diameter gradually increases in diameter from the anode tip toward the back end (fig 2); a portion with a gradually decreasing diameter extending toward the back end of the anode in which the gradually decreasing diameter gradually decreases in the direction toward the back end (fig 2) and a length, in an axial direction of the portion with a gradually decreasing diameter, which is greater than the length in the axial direction of the portion with an increasing diameter (paragraph 13, fig 2); and a portion with a maximum outside diameter which is located in a transition area between the portion with the increasing diameter and the portion with a decreasing diameter (fig 2), and wherein the transition area between the portion with the increasing diameter and the portion with the decreasing diameter is of a continuous profile (fig 2).

Ito et al. does not disclose xenon gas within the arc tube.

Haslund does disclose xenon gas within an arc tube (column 4, lines 10-15).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the xenon gas of Haslund into the lamp of Ito et al. in order to obtain an efficient source.

With regard to claim 2,

Ito et al. disclose the lamp, wherein the relationship  $L > D$  is satisfied when L (mm) is the length in the axial direction from the anode tip to the back end of the anode and D (mm) is the diameter of the portion with the maximum outside diameter (paragraphs 12,14,15).

With regard to claim 6,

Ito et al. disclose the lamp, wherein the portion with an increasing diameter is formed with a substantially arc-shaped, rotationally curved surface (fig 2) and the diameter of the portion with a decreasing diameter decreases substantially linearly (fig 2).

With regard to claim 10,

Ito et al. disclose the lamp, wherein the length in the axial direction of the portion with the decreasing diameter is greater than or equal to one half of the total length of the anode (fig 2).

3. Claims 3,5,7,9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. and Haslund as applied to claim 1 above, and further in view of Mehr et al. (US Pre-grant Publication 2002/0074943).

With regard to claim 3,

Ito et al. disclose the lamp, wherein the diameter of the portion with a decreasing diameter decreases substantially linearly (fig 2), and the surface of the anode in the transition area between the portion with the increasing diameter and the portion with the decreasing diameter is formed as a substantially arc-shaped, rotationally curved surface (fig 2).

Ito et al. do not disclose the diameter of the portion with the increasing diameter increasing substantially linearly.

Mehr et al. do disclose the diameter of a portion with increasing diameter increasing substantially linearly (fig 2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the shape disclosed by Mehr et al. into the lamp of Ito et al. in order to provide good discharge characteristics.

With regard to claim 5,

Ito et al. disclose the lamp, wherein the surface of the anode in the transition area between the portion with the increasing diameter and the portion with a decreasing diameter is formed with a substantially arc-shaped, rotationally curved surface (fig 2).

Ito et al. do not disclose the diameter of the portion with an increasing diameter increasing substantially linearly, and the surface of the portion with a decreasing diameter being formed with a substantially arc-shaped, rotationally curved surface.

Mehr et al. do disclose the diameter of a portion with increasing diameter increasing substantially linearly (fig 2).

Haslund do disclose the surface of a portion with a decreasing diameter being formed with a substantially arc-shaped, rotationally curved surface (fig 1).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the shapes disclosed by Mehr et al. and Haslund into the lamp of Ito et al. in order to provide good discharge characteristics and a smooth connection with the anode lead.

With regard to claim 7,

Ito et al. disclose the lamp.

Ito et al. do not disclose the portion with a decreasing diameter adjoining a portion of the anode having a uniform diameter.

Mehr et al. do disclose a portion with a decreasing diameter adjoining a portion of the anode having a uniform diameter (8b,8a of fig 2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the shape disclosed by Mehr et al. into the lamp of Ito et al. in order to provide good discharge characteristics.

With regard to claim 9,

Ito et al. disclose the lamp.

Ito et al. do not disclose a portion with uniform diameter adjoining the portion with decreasing diameter at the portion with a maximum diameter.

Mehr et al. do disclose a portion with uniform diameter adjoining a portion with decreasing diameter at a portion with a maximum diameter (8b,8a of fig 2).

Utilizing the reasoning in the rejection of claim 7, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the shape disclose by Mehr et al. into the lamp of Ito et al.

4. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al., Haslund and Mehr et al. as applied to claim 7 above, and further in view of Nishida (US Pre-grant Publication 2001/0038265).

With regard to claim 8,

Ito et al. disclose the lamp.

Ito et al. do not disclose the portion with a decreasing diameter adjoining the portion with a uniform diameter at the back end of the anode.

Nishida does disclose a portion with a decreasing diameter adjoining a portion with a uniform diameter at the back end of the anode (fig 3).

***Allowable Subject Matter***

5. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

With regard to claim 4,

While the prior art does disclose a lamp having an anode formed with portions of increasing diameter and decreasing diameter, wherein these portions are formed with a substantially arc shaped, rotationally curved surface, it does not disclose these portions satisfying the relationship  $R3 < R4$  when  $R3$  is the radius of curvature of the curved surface of the portion with the increasing diameter and  $R4$  is the radius of curvature of the curved surface of the portion with the decreasing diameter (in light of the specification and the use of “the radius of curvature”, as opposed to “a radius of curvature” in the claim, the examiner understands “the radius of curvature of the curved surface” to mean the radius of curvature of the surface of the anode in a plane containing the axis of the anode).

***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent 5929565, 5986402, 6051929, 6573658, and US Pre-grant Publication 2001/0035719.




Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher M. Raabe whose telephone number is 571-272-8434. The examiner can normally be reached on m-f 7am-3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CR

  
ASHOK PATEL  
PRIMARY EXAMINER